

Notice of Allowability

Application No.

09/909,714

Applicant(s)

MATSUI ET AL.

Examiner

Art Unit

Javid A. Amini

2672

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 11/18/2004.
2. ☒ The allowed claim(s) is/are 1-5 and 10-15.
3. ☒ The drawings filed on 20 July 2001 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☒ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

Javid A Amini
Examiner
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Allowable Subject Matter

Claims 1-5 and 10-15 allowed.

New claim 15 added.

Canceled claims are 6-9.

The following is an examiner's statement of reasons for allowance:

The independent claims 1 and 14, each claim producing a signal for driving a display apparatus so that the display apparatus emits a light of divisional light amounts in such a manner as to be distributed within a time corresponding to display of the frame. The light amounts are obtained by dividing light amounts corresponding to bits, which compose the digital values corresponding to the pixels of an image. The display apparatus includes light emission means for emitting light of variable intensity. The light emission means includes at least one light source for emitting the light with variable intensity and a light valve corresponding to each pixel that switches on or off (i.e. 0 and 1) to effect emission of the light from the light source. The light valve is driven by the produced signal. Both of a first light amount of the light amounts corresponding to a predetermined bit of the bits that compose the digital values and a second light amount of the light amounts corresponding to a bit in a lower order by one bit to the predetermined bit are divided, the first and second light amounts being divided so that a difference between division numbers of the first and second light amounts of adjacent bits whose light amounts are divided is one of 0 and 1, including a case wherein at least one of the division numbers is greater than 2, thereby effecting a reduction of a moving picture pseudo contour in display of the image in digital gradation. Referring to Applicant's Figure 28A as an illustrative example, bits B0-B7 are divided by a division number. As shown, for example, bit B6 is divided

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4 times, bit B5 is divided 3 times, bit B4 is divided 3 times, and bit B3 is divided 2 times. Thus, adjacent bits (e.g., bits B6 and B5) are divided so that a difference between the difference numbers is 0 or 1. In the example, the difference in the number of divisions between adjacent bits B6 (4 divisions) and B5 (3 divisions) is 1. Thus, this is the case even when more than two divisions divide one of the adjacent bits. Accordingly, it is possible to distribute the divisional light amounts obtained by dividing the light amount of a bit plane of a high order (e.g., 4) in positions near divisional light amounts obtained by dividing the light amount of the bit plane of a lower order (e.g., 1). In other words, in the example of Figure 28A, the bits B0-B7 are divided into a maximum of 4 divisions, so that when the divisions are distributed (as shown in Figure 28B), a division of bit (e.g., B7) can be positioned near divisions of other bits (e.g., B6 and B4) instead of having to be positioned next to another division of the same bit (e.g., B7). Thus, if bit B7 was divided 8 times, some of the divisions of bit B7 need to be positioned next to each other. When the divisions of the same bit are positioned next to each other, which disadvantageously results in moving picture pseudo contours.

New numbering of claims:

New number	Old number	Claim's type
1	1	Independent
2	2	Dependent
3	3	Dependent
4	4	Dependent
5	5	Dependent

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Canceled	6	
Canceled	7	
Canceled	8	
Canceled	9	
6	10	Dependent
7	11	Dependent
8	12	Dependent
9	13	Dependent
11	14	Independent
10	15	Dependent

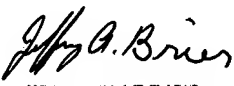
Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Javid A. Amini whose telephone number is 571-272-7654. The examiner can normally be reached on 8-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Razavi can be reached on 571-272-7664. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


JEFFERY BRIER
PRIMARY EXAMINER

Javid A Amini
Examiner
Art Unit 2672

Javid Amini